CARS Context Modelling

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Abstract. Most context-aware recommender systems in the literature that use context modelling have the tendency to develop domain and application specific context models that limit, even eliminate any reuse and sharing capabilities. Developers and researchers in the field struggle to design their own context models without having a good understanding of context and without using any reference models for guidance, often resulting in overspecialized, inefficient or incomplete context models. In this work we build upon prior work to propose an enhanced online context modelling system for Context-Aware Recommender Systems. The system supports CARS developers in the process of building their own context models from scratch, while it supports at the same time sharing and reuse of the models among developers. The system was tested with a real dataset with positive results, as it was able to support context model development with instructions to the developer, model comparison, useful statistics, recommendations of similar models, as well as alternative views of context models to aid the developer's task.

Keywords: Context Modelling System, Context-Aware Recommender Systems, Application Context Model, Context Instance Model, Context variables, Context Dimensions

1 Introduction

A well-known and effective solution to the information overload modern life experiences at all fields is the usage of Recommender Systems (RS). Information overload refers to the vast amount of information users have to access nowadays: users can get lost, disappointed and frustrated for failing to retrieve the desired and needed information at a given time. RS use a variety of filtering techniques and recommendation methods to provide personalized recommendations to their users, mostly by using information retrieved from the user profile, from user's usage history, as well as item related information [5, 9]. However, traditional RS use limited or none contextual information to produce recommendations, as opposed to the Context-Aware Recommender Systems (CARS) that focus in using contextual information to enhance recommendations [2]. Context was first utilized into the recommendation process by Adomavicius by proposing three approaches: the Pre-filtering approach, the Post-filtering approach and the Multidimensional Contextual Modelling approach [1, 2].

Context modelling is important for modelling the contextual information to be used during the recommendation process.

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